

L 19197-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG/WB  
 ACCESSION NR: AR3004195 S/0276/63/000/005/B127/B128

SOURCE: RZh. Tekhnologiya mashinostroyeniya, Abs. 5B645

AUTHOR: Prostakov, M. Ye.

TITLE: Increase of anticorrosion properties of cold-rolled steel for automobile bodies

CITED SOURCE: Tr. Ural'skogo n.-i. in-ta chern. metallov, v. 1, 1961, 291-294

TOPIC TAGS: anticorrosion property, cold-rolled steel, automobile body, electrolyte composition, zinc plating, enamel coating

TRANSLATION: Investigations carried out simultaneously with MZMA established the possibility of increasing corrosion resistance of light-weight automobile bodies made of cold-rolled steel by means of a preliminary (prior to painting) electrolytic zinc-plating of metal in electrolyte of the following composition (in g/l): zinc sulfate 450 to 600, alumopotassic alum [sic] 45 to 50 (pH of solution 3 to 4.5) at a temperature of 18 to 20° and cathodic current density 5 to 6 a/dm<sup>2</sup>. Comparative corrosion tests of painted samples of zinc-plated steel and of parkerized steel established that on samples ground and smoothly painted, and on

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samples zinc coated with auto-enamel after their remaining for 96 hr. in a humid chamber at a temperature of 75° and humidity of 100%, as well as at 72 hr in a 3% solution of nitric chloride at chamber temperature, no changes took place. On parkerized steel samples the paint peeled off and the steel base became corroded. The presence of an intermediary layer of plastic metal-zinc-between varnish coating and the steel base substantially improved the physicochemical properties of varnish coating. So that autoenamel coating of zinc plated ground steel, irrespective of the zinc layer thickness, withstands a hammer blow dropped from a height of 50 cm, as well as bending per the NILK scale about a 1 mm diameter rod. Uniformity of coating is not affected by deep stamping. The presence of zinc coating on steel (1 to 4 micron thickness) does not interfere with contact welding of steel parts and does not weaken the weld strength comparing with non zinc-plated steel. L. Kamionskiy.

DATE ACQ: 21Jun63

SUB CODE: IE, MD

ENCL: 00

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PROSTAKOV, M.Ye.; LEVIN, A.I.; KOCHERGIN, V.P.

Anodic behavior of zinc and tin in alkaline electrolytes. Zhur.  
fiz. khim. 35 no.2:420-425 F '61. (MIRA 16:7)

1. Ural'skiy institut chernykh metallov i Ural'skiy  
politekhnikheskiy institut imeni Kirova, Sverdlovsk.  
(Tin) (Zinc) (Electrochemistry)

LEVIN, A.I., doktor tekhn. nauk; PROSTAKOV, M.Ye., kand. tekhn. nauk

Passive films on nonferrous and ferrous metals. Zhur.  
VKHO 8 no.5:524-529 '63. (MIRA 17:1)

S/081/61/000/003/005/019  
A166/A129

**AUTHORS:** Prostakov, M. Ye., Kochergin, V. P., Shayevich, A. B.

**TITLE:** The composition of the surface layers of some metals and alloys after passivation in alkaline solutions of sodium chromate and bichromate

**PERIODICAL:** Referativnyy zhurnal. Khimiya, no. 3, 1961, 290, abstract 3I103.  
(Byul. nauchno-tekhn. inform. Ural'skiy n.-i. in-t Chern. metallov, 1959, no. 7, 91 - 94)

**TEXT:** Spectral analysis was used to determine the Cr content in passive films on passivated tin plate and also on passivated samples of galvanized Fe, brass and Cu, coated with an Sn-Pb solder. Passive films on passivated tin plate proved to be durable in boiling water and partly durable in alkaline solutions. Complete destruction of these films was observed in a boiling solution containing NaCl (200 g/l) and HCl (acid) (4 g/l).

Author's summary

[Abstracter's note: Complete translation]

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SMIRNOV, Nikolay Sergeyevich; PROSTAKOV, Maksim Yefimovich

[Steel surface cleaning] Ochistka poverkhnosti stali.  
Moskva, Metallurgiya, 1965. 215 p. (MIRA 18:3)



*Nazarov*  
HETEROCYCLIC COMPOUNDS . . .

72.5% Ib (R=Et),  $b_p$  76-8°,  $n_D^{20}$  1.4630. Heating II with  $CH_2=CHCH_2Cl$  in dioxane 18 hrs. at 100° gave 40% Ib (R=allyl),  $b_p$  7-5 87°,  $n_D^{20}$  1.4740,  $d_4^{20}$  0.9464; picrate, m. 112-116°. II with PrI in 17 hrs. gave some 30% Ib (R=Pr),  $b_p$  88-9°,  $n_D^{20}$  1.4602,  $d_4^{20}$  0.9260; picrate, m. 157-8°. The same formed on hydrogenation of the allyl analog over Raney Ni in EtOH, or in cyclization of I with  $PrNH_2$  in aq. soln. 4 hrs. at 60°; in the latter case the yield was 71.5%. iso-PrI and II in dioxane in 10 hrs. at 100° gave Ib (R=iso-Pr),  $b_p$  86-7°,  $n_D^{20}$  1.4635,  $d_4^{20}$  0.9342 (picrate, m. 168°) in 25% yield; I with aq. iso- $PrNH_2$  in 5 hrs. at 75° gave a 75% yield crude product. Ia with aq.  $BuNH_2$  in 3 hrs. at 80° gave 50% Ib (R=Bu),  $b_p$  75-6°,  $b_p$  80-1°,  $n_D^{20}$  1.4630,  $d_4^{20}$  0.9258 (the same formed readily from II and BuI n. dioxane in the presence of  $CuSO_4$  in 13 hrs. at (90-5°); picrate, m. 135-6°; methiodide, m. 151.5°; butiodide, m. 100-3°. II and iso-BuI heated with  $K_2CO_3$  15 hrs. at 90-5° gave about 60% Ib (R=iso-Bu),  $b_p$  3-5 80°,  $n_D^{20}$  1.4605,  $d_4^{20}$

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Nazarov

HETEROCYCLIC COMPOUNDS...

0.9170 (methiodide, m. 147-8°), the same being formed in 50% yield from Ia and aq. iso-BuNH<sub>2</sub> in 4.5 hrs. at 80°. II and iso-AmI in dioxane in the presence of BiCl<sub>3</sub> in 4.5 hrs. at 95° gave about 50% Ib (R=iso-Am), b<sub>2</sub> 90-2°, n<sub>D</sub><sup>20</sup> 1.4615, d<sub>20</sub> 0.9102 (picrate, m. 142.5-3°); the same formed in 60% yield from I and iso-AmNH<sub>2</sub> in 6 hrs. at 65°. II and C<sub>6</sub>H<sub>13</sub>I in dioxane with a little BiCl<sub>3</sub> in 9.5 hrs. at 80° gave 80% Ib (R=hexyl), b<sub>3</sub> 114-15°, n<sub>D</sub><sup>20</sup> 1.4615, d<sub>20</sub> 0.9018 (methiodide, m. 123-4°). I and cyclohexylamine heated with a little MeOH-H<sub>2</sub>O 6 hrs. at 80° gave about 85% Ib (R=cyclohexyl), m. 73-4° (HCl salt, m. 171-2°). II and PhCH<sub>2</sub>Cl in dioxane in 16 hrs. at 100° gave over 90% Ib (R=PhCH<sub>2</sub>), b<sub>3-5</sub> 129-30°, n<sub>D</sub><sup>20</sup> 1.5291 (picrate, decomp. 142°). II and C<sub>9</sub>H<sub>19</sub>I in dioxane in 12.5 hrs. at 90° gave 75% Ib (R=nonyl), b<sub>1</sub> 146-8°, n<sub>D</sub><sup>20</sup> 1.4615, d<sub>20</sub> 0.8966. C<sub>11</sub>H<sub>22</sub>I similarly gave (BiCl<sub>3</sub> used as catalyst) about 60% Ib (R=undecyl), b<sub>0.09</sub> 127-8°, n<sub>D</sub><sup>20</sup> 1.4660, d<sub>20</sub> 0.889, while

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*MAZARD*

*HETEROCYCLES*

I and  $C_{12}H_{25}NH_2$  after 6.5 hrs. at 60-70° gave about 50%  
 Ib (R=dodecyl),  $b_p$  129-32°,  $n_D^{20}$  1.4700,  $d_{20}$  0.8900. II  
 treated with  $MeOCH_2Cl$  in  $Et_2O$  gave a low yield of Ib  
 (R= $MeOCH_2$ ),  $b_p$  72-5°,  $d_{20}$  0.9982,  $n_D^{20}$  1.4788. Heating  
 II (10 g.) with 57 g.  $(CH_2Br)_2$  with 0.7 g.  $CuSO_4$  and 0.5 ml.  
 $H_2O$  7 hrs. on a steam bath gave 1.1 g. 1,2-bis(2,5-dimethyl-4-  
 oxo-1-piperidyl)ethane, m. 135-8° (from  $EtOH$ ). To 3.5 g.  
 2,5-dimethyl-4-piperidol in 5.5 g. cyclohexanone was added  
 in 1.5 hrs. at 130-60° 2.4 g. 98%  $HCO_2H$  and the cooled  
 soln. was treated with dry  $HCl$  yielding 3.0 g. 1-cyclohexyl-2,5-  
 dimethyl-4-piperidol- $HCl$ , m. 307-8°; free base, m. 85-  
 6.5°. Heating 20 g. II with 31 g. cyclohexanone and 3.6 g.  
 98%  $HCO_2H$  15 min. to 110-15°, followed by 3.6 g.  $HCO_2H$   
 and heating 0.5 hr. at 115°, the operation being repeated  
 twice, resulted in 9.3 g. 1-cyclohexyl-2,5-dimethylpiperidine-  
 $HCl$ , m. 332-5°; free base,  $b_p$  83.5°,  $n_D^{20}$  1.4855,  $d_{20}$  0.9200.  
 II and  $C_7H_{15}OH$  treated with 98%  $HCO_2H$  and rapidly  
 heated to 110° (repeated twice) gave 25% 1-heptyl-2,5-  
 dimethylpiperidine,  $b_p$  96.5-7.5°,  $n_D^{20}$  1.4650,  $d_{20}$  0.9132.

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# NAZAROV HETEROCYCLIC COMPOUNDS

Heating 1,2,5-trimethyl-4-piperidone with piperidine and 98% HCO<sub>2</sub>H 3 hrs. at 117-26°, then treated with concd. HCl overnight, gave a very low yield of 1,2,5-trimethyl-4-piperidylpiperidine, b<sub>p</sub> 119.5-20°, n<sub>D</sub><sup>20</sup> 1.4293, d<sub>20</sub> 0.9324; dimethiodide, m. 211-12.5°. XXXIV. Synthesis of 4-piperidones, 4-piperidols, and their esters, containing oxo-alkyl radicals at the nitrogen. I. N. Nazarov and E. M. Cherkasova. Ibid. 2512-19. ---Heating 5 g. 2,5-dimethyl-4-piperidone (I) with 4.83 g. 1-methoxy-3-butanone and 1.3 ml. H<sub>2</sub>O 6.5 hrs. at 140-50° gave after cooling, acidification with HCl and extn. with Et<sub>2</sub>O, followed by neutralization of the aq. layer and extn. of this with Et<sub>2</sub>O, 2 g. 1-(3-oxobutyl)-2,5-dimethyl-4-piperidone, b<sub>p</sub> 111-12°, n<sub>D</sub><sup>20</sup> 1.4810, d<sub>20</sub> 1.0760. Propenyl isopropenyl ketone similarly gave an analogous yield of 1-(1,4-dimethyl-3-oxo-4-pentenyl)-2,5-dimethyl-4-piperidone, b<sub>p</sub> 138-9°, n<sub>D</sub><sup>20</sup> 1.4850, d<sub>20</sub> 0.9777. after 11 hrs. at 80°, 5 hrs. at 100°, and 1 hr. at 110°; methiodide, m. 185-6° (the same compound formed from 2,5-dimethyl-4-piperidone and 1,5-dimethoxy-2-methyl-3-hex-

*NAZAROV  
HETEROCYCLIC COMPOUNDS*

anone and H<sub>2</sub>O in 10 hrs. at 110°. Hydrogenation of the product over Ni in EtOH gave 1-(1,4-dimethyl-3-oxopentyl)-2,5-dimethyl-4-piperidone, b<sub>1</sub> 111-13°, n<sub>D</sub><sup>20</sup> 1.4766, d<sub>20</sub> 0.9815 (methiodide, m. 190-90.5°). I (23.7 g.) and 20.5 g. Me<sub>2</sub>C=CHCOCH<sub>2</sub>CH<sub>2</sub> after 8 hrs. at 65° gave 27 g. 1-(5-methyl-3-oxo-4-hexenyl)-2,5-dimethyl-4-piperidone, b<sub>1</sub> 134-5°, n<sub>D</sub><sup>20</sup> 1.4855, d<sub>20</sub> 0.9997 (methiodide, m. 184-5°), also formed from I and 1-methoxy-5-methyl-4-hexen-3-one and a little H<sub>2</sub>O in 10 hrs. at 110°. I (12.5 g. and 15.9 g. MeO-CH<sub>2</sub>CH<sub>2</sub>COCH<sub>2</sub>CHMe<sub>2</sub> and 3 ml. H<sub>2</sub>O in 10 hrs. at 120° gave 2.8 g. 1-(5-methyl-3-oxohexyl)-2,5-dimethyl-4-piperidone, b<sub>1</sub> 125-7°, n<sub>D</sub><sup>20</sup> 1.4738, d<sub>20</sub> 0.9761 (methiodide, m. 187-8°), also formed from the unsatd. analog above on hydrogenation in EtOH over Raney Ni at room temp. I (34.5 g.) in 10 ml. dry Et<sub>2</sub>O treated with 19.1 g. AcCH<sub>2</sub>Br in 15 ml. Et<sub>2</sub>O (cooling necessary) gave after 24 hrs. I.HBr as a ppt., while the soln. after neutralization with HCl and etn. with Et<sub>2</sub>O gave on addn. of NaOH 18.2 g. 1-acetonyl-2,5-dimethyl-4-piperidone, b<sub>1</sub> 105°, n<sub>D</sub><sup>20</sup> 1.4760, d<sub>20</sub> 1.0268 (picrate, m.

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NABAROV  
HETEROCYCLIC COMPOUNDS . . .

154-5.5°), also formed in poorer yield from  $\text{AcCH}_2\text{Cl}$  and I. Similar reaction with  $\text{BzCH}_2\text{Br}$  gave 1-phenacyl-2,5-dimethyl-4-piperidone, m. 75-6°, in moderate yield. I in dioxane treated as above with 2-bromocyclohexanone and heated 6 hrs. at 130° gave a very low yield of 1-(2-oxocyclohexyl)-2,5-dimethyl-4-piperidone, m. 186-7°. Reduction of I with Na-EtOH gave 2,5-dimethyl-4-piperidol. This (12.9 g.) in 50 ml. dry EtOH treated with 15.1 g.  $\text{AcCH}_2\text{Br}$  and after 24 hrs. heated 4 hrs. on a steam bath gave a ppt. of 14.5 g. 1-acetonyl-2,5-dimethyl-4-piperidol-HBr, m. 209-11°; free base, b<sub>2</sub> 132-3°; this treated with  $\text{Ac}_2\text{O}$  satd. with HCl, finally 4 hrs. on a steam bath, gave the acetate-HCl, m. 194-6°. Similarly was prepd. the propionate-HCl, m. 181,5-3°; the use of  $\text{BzCl}$  satd. with HCl gave the corresponding benzoate-HCl, m. 205-6.5°. 2,5-Dimethyl-4-piperidol (9.5 g.) in 40 ml. dioxane treated with 16 g.  $\text{BzCH}_2\text{Br}$  in 40 ml. dioxane, heated 4 hrs. at 115°, and kept overnight, gave

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NAZAROV  
HETEROCYCLIC COMPOUNDS . . .

after concn. and usual treatment with NaOH, extrn. with Et<sub>2</sub>O and pptn. with HCl, 8 g. 1-phenacyl-2,5-dimethyl-4-piperidol-HCl, m. 105-7° (after washing with Me<sub>2</sub>CO). This with AcCl, satd. with HCl, gave the acetate-HCl, m. 164-5°; corresponding propionate-HCl, m. 171-3°; benzoate-HCl, m. 191.5-3°. PhMgBr with bromoacetone gave methylphenylglycol bromohydrin, PhMe(OH)CH<sub>2</sub>Br, b<sub>p</sub> 105-7°. This with I in dry Et<sub>2</sub>O gave after three hrs. on a steam bath a low yield of 1-(2-hydroxy-2-phenylpropyl)-2,5-dimethyl-4-piperidone-HCl, m. 121-3°.

G. M. K.

PM  $\frac{8}{D}$

PROSTAKOV N. S.



Hydration of bornylene and its nearest homolog, 4-methylbornylene. A. I. Shavrygin and N. S. Prostakov (Fine Chem. Technol. Inst., Moscow). *J. Gen. Chem. (U.S.S.R.)* 18, 495-8 (1948) (in Russian). —*I*-Borneol, m. 200.5-7°,  $[\alpha]_D -30.65^\circ$  (in EtOH), was converted by the Chugaev xanthate method to bornylene, which, after purification by pptn. with H<sub>2</sub>O from aq. alc. NaOH and steam distn., m. 104-4.5° (from EtOH),  $[\alpha]_D 10.46^\circ$  (in MePh). This (16 g.), 100 g. AcOH, and ZnCl<sub>2</sub> heated 30 hrs. at 50-5°, gave 19 g. mixed  $\alpha$ - and  $\beta$ -acetates, b<sub>p</sub> 111-12°,  $d_4^{20} 0.9819$ ,  $n_D^{20} 1.4663$ , hydrolyzed by heating 5 hrs. with aq. alc. NaOH, followed by pouring into H<sub>2</sub>O, to the  $\alpha$ - and  $\beta$ -alc. mixt., m. 182-8° after repeated crystn. from EtOH; a stereoisomer mixt. of the known borneol and a new isomer, which was not sepd. AcOH (100 g.), 3 g. 50% H<sub>2</sub>SO<sub>4</sub>, and 15 g. bornylene heated 30 hrs. at 55-60°, gave a mixt. of acetates, b<sub>p</sub> 101-5°,  $d_4^{20} 0.98558$ ,  $n_D^{20} 1.4648$ , C<sub>12</sub>H<sub>20</sub>O<sub>2</sub> (18 g.); hydrolysis, as above, gave again a mixt. of isomeric borneols, m. 183-93° (in sealed capillary; from petr. ether). 4-Methylbornylene, m. 110.5-20°, prepd. by the xanthate method from 4-methylisoborneol, gave a single acetate, hydrolyzed to 4-methylborneol, as described earlier (*C.A.* 32, 2918<sup>1</sup>; 34, 404<sup>1</sup>).

G. M. Kosolapoff

PROSTAKOV, N. S.

"Synthesis of Complex Esters of Gamma-Piperidols." Sub 8 Oct 51,  
Moscow Inst of Fine Chemical Technology Imeni M. V. Lomonosov.

Dissertations presented for science and engineering degrees in  
Moscow during 1951.

SO: Sum. No. 480, 9 May 55



NAZAROV, I.N.; MASHKOVSKIY, M.D.; RUDENKO, V.A.; PROSTAKOV, N.S.; ISHCHENKO, V.I.

New analgesic promedol. Klin. med., Moskva 30 no.8:60-63 Aug 1952.  
(CML 23:2)

1. Professor, Corresponding Member Academy of Sciences USSR for Nazarov;  
Professor for Mashkovskiy. 2. Moscow.

PRESTAKOV, N. S.

USSR

Contact isomerization of allyl alcohol into propionaldehyde. R. M. Flai and N. S. Prestakov. *Trudy Akad. Nauk SSSR, Khim.* 1954, No. 34054. The reaction was carried out in the vapor phase at 160-110° using a catalyst (1). As I was studied: reduced Cu, ZnO, ZnO + Na<sub>2</sub>CO<sub>3</sub> (0.6 and 5% Na<sub>2</sub>CO<sub>3</sub>), aluminum silicate, aluminum silicate treated with NaOH, Al<sub>2</sub>O<sub>3</sub>, silica gel, and H<sub>3</sub>PO<sub>4</sub> on C. Isomerization occurred both on metal and oxide catalysts. In the case of the latter, the reaction proceeded easier the more basic the oxide. The isomerization mechanism of allyl alc. is viewed as a combined reaction of dehydrogenation and hydrogenation with combined H according to:  

$$CH_2=CHCH_2OH + I \rightleftharpoons CH_3CHCHO + I-H_2$$

$$I-H_2 + CH_3CHCHO \rightleftharpoons I + CH_3CH_2CHO$$
 (adsorbed)  $\rightleftharpoons$  CH<sub>3</sub>CH<sub>2</sub>CHO...  
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N. S. PROSTAKOV

USSR/Kinetics. Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26250

Author : M.Ya. Kagan, R.M. Flid, N.S. Prostakov

Inst : Moscow Institute of Fine Chemical Technology

Title : Kinetics of Contact Isomerization of Allyl Alcohol into Propionic Aldehyde.

Orig Pub : Tr. Mosk. in-ta tonkoy khim. tekhnol., 1955, vyp. 5, 45-49

Abstract : The dependence of the yield of propionic aldehyde at the contact isomerization of allyl alcohol on temperature and contact duration was studied; Cu precipitated on pumice was used as catalyst. In the authors' opinion, the catalyst activity is dropping during the work in consequence of the poisoning of the catalyst by a polymer film forming on its surface. The drop of the catalyst activity is accelerated by the temperature rise and does not depend on the volume speed of the allyl alcohol flow. The reaction under study is of the zero order at 200 to 220°; the activity energy and the constants of the isomerization speed were computed.

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PROSTAKOV N.S.

*Chem* Heterocyclic compounds. XXXIII. Synthesis of 1-alkyl-2,5-dimethyl-4-piperidones. I. N. Nazarov, E. M. Cherkasova, N. S. Prostakov, and N. I. Shvetsov. *J. Gen. Chem. U.S.S.R.* 25, 2269-17 (1955) (Engl. translation).—See *C.A.* 50 9411h *B. M. R.*

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NAZAROV, I.N.; CHERKASOVA, Ye.M.; PROSTAKOV, N.S.; SHVETSOV, N.I.

Heterocyclic compounds. Part 33. Synthesis of 1-alkyl-2,5-dimethyl-4-piperidones. Zhur.ob.khim. 25 no.12:2245-2255 N '55.  
(MLRA 9;4)

1.Moskovskiy institut tenkey khimicheskoy tekhnologii imeni  
M.V.Lomonosova.

(Piperidone)

PROSTAKOV, N.S.

NAZAROV, I.N.; PROSTAKOV, N.S.; SHVETSOV, N.I.

Heterocyclic compounds. Report No.39: Synthetic anesthetics. Part 4: Esters of 1,2,5-trimethyl-4-phenyl-4-piperidol with aliphatic acids. Synthesis of promedol and isopromedol. Zhur. ob. khim. 26 no.10:2798-2811 0 '56. (MIRA 11:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Esters) (Piperidine)

*PROSTAKOV, N.S.*

NAZAROV, I.N.; PROSTAKOV, N.S.; MIKHEYEVA, N.N.; SHAVRYGINA, O.A.

Heterocyclic compounds. Report No.40: Synthetic anesthetics. Part 5:  
Esters of 1,2,5-trimethyl-4-phenyl-4-piperidol with aromatic acids.  
Zhur. ob. khim. 26 no.10:2812-2820 0 '56. (MIRA 11:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.  
Lomonosova.

(Esters) (Piperidine)

*Rec'd N. K. M. S.*  
NAZAROV, I.N.; PROSTAKOV, N.S.; MIKHAYEVA, N.N.; SHAVRYGINA, O.A.

Heterocyclic compounds. Report No. 41: Synthetic anesthetics. Part 5:  
Esters of 1,2,5-trimethyl-4-aryl-4-piperidols. Zhur. ob. khim. 26  
no.10:2820-2834 0 '56. (MIRA 11:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.  
Lomonosova.

(Esters) (Piperidine)



PROSTAKOV, N S

NAZAROV, I.N.; PROSTAKOV, N.S.

Heterocyclic compounds. Report No.42: Synthetic anesthetics. Part 7:  
Esters of tertiary and secondary 4-piperidols. Zhur. ob. khim. 26  
no.10:2834-2844 0 '56. (MIRA 11:3)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.  
Lomonosova.

(Esters) (Piperidine)

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AUTHORS: Hazarov, I. N., (Deceased), Prostakov, M. S., Zavel'skaya I. G., Mikheyeva, N. N. SCV/103-58-3-10,30

TITLE: Heterocyclic Compounds (Geterotsiklicheskiye soyedineniya) Synthetic Anesthetics (Sinteticheskiye obezbolivayushchiye veshchestva) 1- $\beta$ -N-Morpholine-Ethyl-2,5-Dimethyl-4-Phenyl-4-Propion-Oxy-Piperidine (1- $\beta$ -N-Morfolinoetil-2,5-dimetil-4-fenil-4-propionoksipiperidin)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 69 - 74 (USSR)

ABSTRACT: The introduction of the morpholine residue into the molecule of a physiologically active substance often increases its activity and sometimes even leads to the formation of new physiological properties. Synthetic analgesics of high activity are known which also contain a morpholine residue. Examples are given (Refs 1-9). Acetate and benzoate hydrochlorides of 1- $\beta$ -oxy-ethyl-2,5-dimethyl-4-piperidon as well as the benzoate hydrochloride of 1- $\beta$ -oxy-ethyl-2,5-dimethyl-4-piperidol were synthesized for the purpose

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Heterocyclic Compounds. Synthetic Anaesthetics.

SCV/103-50-3-13/30

1-β-N-Morpholine-Ethyl-2,5-Dimethyl-4-Phenyl-4-Propion-Oxy-Piperidine

of pharmacological tests. A Schiff's base is formed in quantitative yield from piperidon and aniline: 1-β-oxy-ethyl-2,5-dimethyl-4-phenyl-imino piperidine. The substitution of the oxy group of 1-β-oxy-ethyl-2,5-dimethyl-4-piperidon by chlorine by means of thionyl chloride in dioxane dichloro ethane and chloroform without solvents using the free base of piperidon and its hydrochloride takes place under the formation of considerable amounts of resin-like substances. The hydrochloride of 1-β-chloro-ethyl-2,5-dimethyl-4-piperidon was synthesized in a yield of only 10-11%. On the other hand, the hydrobromide of 1-β-bromo-ethyl-2,5-dimethyl-4-piperidon is formed in a yield of up to 80%. Free bases of the corresponding halogen derivatives are separated from halogen hydrates due to the treatment with aqueous soda solution; the product is well soluble in ether. The free bases cannot be isolated in vacuum, as already in a slight heating or on a longer storing a crystalline, highly hygroscopic substance unsoluble

Card 2/4

Heterocyclic Compounds. Synthetic Anaesthetics.

SOV/153-58-3-13/30

1-β-N-Morpholine-Ethyl-2,5-Dimethyl-4-Phenyl-4-Propion-Oxy-Piperidine

in ether is precipitated from the ether solution. 1-β-N-morpholine-ethyl-2,5-dimethyl-piperidon was synthesized by heating the 1-β-bromo-ethyl-2,5-dimethyl-4-piperidon-hydrobromide with morpholine in dioxane. Furthermore 1-β-N-morpholine ethyl-2,5-dimethyl-4-phenyl-4-piperidol was isolated by the interaction of piperidon with phenyl lithium and esterified by means of propionic acid chloride. The propionate hydrodichloride of 1-β-N-morpholine-ethyl-2,5-dimethyl-4-phenyl-4-piperidol is an analog of promedol (propionate hydrochloride of 1,2,5-trimethyl-4-phenyl-4-piperidol (Ref 10) and was tested as to its anaesthetic effect. According to data supplied by the laboratory of Professor M.D.Mashkovskiy (Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut= All Union Scientific Chemical and Pharmaceutical Research Institute) the propionate hydrodichloride synthesized has a considerably stronger analgesic effect than morphine. In this effect it is equal to promedol but has a somewhat higher toxicity. Detailed results of the pharmacological

Card 3/4

Heterocyclic Compounds. Synthetic Anaesthetics.

SOV/153-58-3-13/30

1-β-N-Morpholine-Ethyl-2,5-Dimethyl-4-Phenyl-4-Propion-Oxy-Piperidine

investigations will be published separately. An experimental part follows. There are 11 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova (Moscow Institute of Fine Chemical Technology imeni M.V.Lomonosov) Kafedra organicheskoy khimii (Chair of Organic Chemistry)

SUBMITTED: October 4, 1957

Card 4/4

AUTHOR: Prostakov, N.S., Docent SOV/3-58-11-22/38

TITLE: The Student Must Know the Scientific Literature on Chemistry  
(Student dolzhen znat' nauchnuyu literaturu po khimii)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 11, pp 58 - 60 (USSR)

ABSTRACT: Faculties and Chairs with an organic trend are facing considerable tasks since they are to ensure the training of technical and scientific competent specialists who are able to develop chemical science and the industry of polymeric materials. Among the problems demanding special attention is the students independent work with special literature. One cannot think of a modern engineer who does not systematically follow-up the development of science and engineering by reading journals published in the USSR and abroad. Yet, one often meets students of the 4th and even 5th course who are unable to make use of special periodical publications and reference books. This is due to the fact that the methodical outline for lectures and practical training do not make the students familiar with reference books and scientific periodicals. The author considers it necessary that the students be acquainted with this literature in lectures and practical exercises. The Chair of Organic Chemistry of the Moscow Institute of Fine Chemical Technology has been

Card 1/2

SOV/3-58-11-22/38

The Student Must Know the Scientific Literature on Chemistry

trying to familiarize every student individually with the special literature, but this additional work overburdened the instructors. It was considered most rational to familiarize the students in a consecutive and systematic order with the basic reference books and periodical publications during practical training. In this connection the author cites a great number of English, Russian, German and French periodicals.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M.V. Lomonosov)

Card 2/2

AUTHORS: Nazarov, I. N. (Deceased), Prostakov, M. S., <sup>79-28-4-26/60</sup> Mikheyeva, N. N.

TITLE: Heterocyclic Compounds (Geterotsiklicheskiye soedineniya) 61. Synthetic Anaesthetics (Sinteticheskiye obozbolivayushchiye veshchestva) XXV. The Esters of the 1,2,5-Trimethyl-4-Phenyl (Aryl)-4-Piperidole (XXV. Slozhnyye efiry 1,2,5-trimetil-4-fenil (aril)-4-piperidola)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 4, pp. 960-968 (USSR)

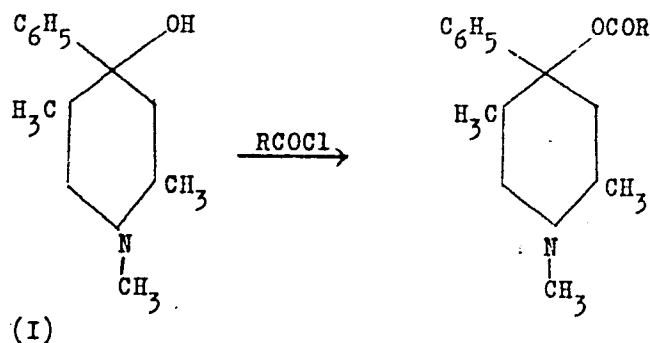
ABSTRACT: The authors investigated the influence of the structure of the esters of the 1,2,5-trimethyl-4-phenyl-4-piperidole on their physiological activity and have obtained a new series of compounds of this type. The  $\gamma$ -isomer of the 1,2,5-trimethyl-4-phenyl-4-piperidole (melting point at 107-108°C) (I), the propionic ester of which is a strong analgesic (Ref 2) - at present it is frequently applied under the name of "Promedol" -, was etherified by acid chloride.

Card 1/3



79-28-4-26/60

Heterocyclic Compounds. 61. Synthetic Anaesthetics. XXV. The Esters of the 1,2,5-Trimethyl-4-Phenyl (Aryl)-4-Piperidole



R=n-CH<sub>3</sub>OC<sub>6</sub>H<sub>4</sub>OCH<sub>2</sub> (II); R=n-C<sub>2</sub>H<sub>5</sub>OC<sub>6</sub>H<sub>4</sub>OCH<sub>2</sub> (III); R=C<sub>6</sub>H<sub>5</sub>OCHCH<sub>3</sub> (IV)  
 R=C<sub>6</sub>H<sub>5</sub>OC(CH<sub>3</sub>)<sub>2</sub> (V); R=n-ClC<sub>6</sub>H<sub>4</sub>OC(CH<sub>3</sub>)<sub>2</sub> (VI); R=n-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>OCH<sub>2</sub> (VII);  
 R=n-NH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>OCH<sub>2</sub> (VIII); R=(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>CH (IX); R=C<sub>6</sub>H<sub>5</sub>-C≡C (X);  
 R=α-C<sub>4</sub>H<sub>3</sub>O (α-furyl) (XI); R=C<sub>6</sub>H<sub>5</sub>SCH<sub>2</sub>CH<sub>2</sub> (XII).

Card 2/3

According to pharmaceutical investigations carried out in the laboratory of M. D. Mashkovskiy some of the mentioned esters

79-28-4-26/60

Heterocyclic Compounds. 61. Synthetic Anaesthetics. XXV. The Esters of the  
1,2,5-Trimethyl-4-Phenyl (Aryl)-4-Piperidole

have considerable locally anaesthetizing effect. The degree of the anaesthetizing effect, which was determined according to Ren'ye's method, is given in the table for some of the preparations. The complete results of the pharmaceutical investigation of the preparations obtained will be published in a separate paper. There are 1 table and 4 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii,  
(Moscow Institute for Fine Chemical Technology)

SUBMITTED: April 1, 1957

Card 3/3

NAZAROV, I.N. [deceased]; PROSTAKOV, N.S.; MIKHEYEVA, N.N.

Heterocyclic compounds. Part 62: Stereoisomerism of 1-acyl-2,5-dimethyl-4-piperidones. Zhur.ob.khim. 28 no.9:2431-2440 S '58.  
(MIRA 11:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.  
(Piperidone) (Isomerism)

AUTHORS: Nazarov, I. N., (Deceased), Prostakov, N. S., SOV/72-28-1c-25/20  
Mikheyeva, N. N.

TITLE: Heterocyclic Compounds (Geterotsiklicheskiye soyedineniya)  
63. Synthetic Analgesics (63. Sinteticheskiye obezbolevayushchiye  
veshchestva) XXVI. Stereo Isomerism of 2,5-Dimethyl-  
4-Phenyl-4-Piperidols and 1-Acyl-2,5-Dimethyl-4-Phenyl-4-  
Piperidols (XXVI. Stereoizomeriya 2,5-dimetil-4-fenil-4-  
piperidolov i 1-atsil-2,5-dimetil-4-fenil-4-piperidolov)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 26, Nr 10,  
pp 2746-2757 (USSR)

ABSTRACT: The authors continued their investigations in the series  
of the 1-alkyl-2,5-dimethyl-4-aryl-4-piperidols and  
their esters (Ref 1) by synthesizing the analogs of these  
piperidine alcohols with an acyl radical as substituent  
on the nitrogen. They obtained 2,5-dimethyl-4-phenyl-4-  
piperidols the transition of which to the earlier described  
stereo-isomeric 1,2,5-trimethyl-4-phenyl-4-piperidols  
(Ref 1) was successful. 2,5-dimethyl-4-phenyl-4-piperidols  
(II) is formed by the reaction of phenyl lithium with

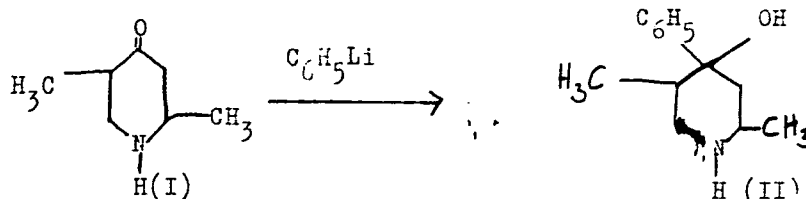
Card 1/4.

Heterocyclic Compounds. 63. Synthetic Analgesics.

SOV/79-28-10-25/60

XXVI. Stereo Isomerism of 2,5-Dimethyl-4-Phenyl-4-Piperidols and 1-Acetyl-2,5-Dimethyl-4-Phenyl-4-Piperidols

2,5-dimethyl-4-piperidone (I):



Of the four stereo-isomers of the compound (II) which are theoretically possible the  $\gamma$ - and the  $\alpha$ -isomer were separated in crystalline form. The third isomer of this piperidol (II) was obtained in the form of the N-acetyl derivative. The separation of the stereo-isomeric piperidol was carried out chromatographically on aluminum oxide and by crystallization. Among the many transformations of piperidols described (in the dehydration, on the action of hydrogen chloride and acetyl bromide) the transition of the  $\alpha$ -isomer of piperidol into the  $\gamma$ -isomer is of

Card 2/4

Heterocyclic Compounds. 63. Synthetic Analgesics. SOV/79-28-10-25/60  
 XXVI. Stereo Isomerism of 2,5-Dimethyl-4-Phenyl-4-Piperidols and 1-Acyl-  
 2,5-Dimethyl-4-Phenyl-4-Piperidols

special interest. Thus the following compounds were synthesized in yields of up to 85%: (VI) 1-acetyl-, (VII) 1-propionyl-, (VIII) 1-benzoyl-, (IX) 1-diethylaminoacetyl-, (X) 1-mesyl-, and (XI) 1-benzene sulfo-2,5-dimethyl-4-phenyl-4-piperidol. Theoretical conclusions were drawn from the results obtained. There are 5 references, 2 of which are Soviet.

ASSOCIATION: **Moakovski** institut tonkoy khimicheskoy tekhnologii  
 (Moscow Institute for Fine Chemical Technology)

SUBMITTED: October 25, 1957

Card 3/4

Heterocyclic Compounds. 63. Synthetic Analgesics. SOV/79-28-10-25/60  
XXVI. Stereo Isomerism of 2,5-Dimethyl-4-Phenyl-4-Piperidols and 1-Acyl-  
2,5-Dimethyl-4-Phenyl-4-Piperidols

Card 4/4

NAZAROV, I.N. [deceased]; PROSTAKOV, N.S.; MIKHAYEVA, N.N.; DOBRYNIN, V.N.

Synthesis of Schiff bases from 1,2,5-trimethyl-4-piperidone  
and aromatic amines. Izv.vys.ucheb.zav.; khim.i khim.tekh. 2  
no.5:726-729 '59. (MIRA 13:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
M.V.Lomonosova, kafedra organicheskoy khimii.  
(Schiff bases) (Piperidone) (Amines)



5 (3)

AUTHORS:

Nazarov, I. N., ~~Prostakov, N. S.~~,  
Mikheyeva, N. N., Davydova, S. L.

30V/79-29-7-40/83

TITLE:

Synthetic Anodyne Compounds.  $\gamma$ -Piperidones,  $\gamma$ -Piperidols  
and Their Ethers (Sinteticheskiye obezbolivayushchiye  
veshchestva.  $\gamma$ -Piperidony,  $\gamma$ -piperidoly i ikh efiry)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2285-2292 (USSR)

ABSTRACT:

The authors continued their investigations on the synthesis of  $\gamma$ -piperidols and their ethers, the analogs of promedol and isopromedol (Ref 1), and obtained a number of new  $\gamma$ -piperidones by alkylation or acylation of the 2,5-dimethyl-4-piperidone (Refs 2, 3). The 1- $\beta$ -phenyl ethyl-(I), 1- $\gamma$ -phenyl allyl-(II), 1- $\beta$ -p-nitro phenyl ethyl-(III), 1-phenyl carbo-methoxy-methyl-(IV), 1-(3',4',5'-trimethoxy benzoyl)-(VI), 1-nicotinoyl-(VII), 1-furfuroyl-(VIII), 1- $\beta$ -diethyl-amino propionyl-(IX) and 1-carbo-benzoyl-2,5-dimethyl-4-piperidone (X) were synthesized. Compound (V) was obtained by the reduction of the nitro group of 1-p-nitro benzoyl-2,5-dimethyl-piperidone (Ref 3). In the case of hydrogenolysis of (X) the initial-2,5-dimethyl-4-piperidone is formed. Synthesis of the  $\gamma$ -piperidols was brought about by reaction of the corresponding piperidones

Card 1/2

Synthetic Anodyne Compounds.  $\gamma$ -Piperidones,  
 $\gamma$ -Piperidols and Their Ethers

SD7/79-29-7-40/83

with organolithium compounds or also by substitution of hydrogen of the secondary amino group of the 2,5-dimethyl-4-phenyl-4-piperidol (Ref 4) by the corresponding radicals. The following compounds are obtained: The piperidols (XI), (XII), (XIII), (XIV), (XV). In the case of ether formation of piperidols by means of acid chlorides the ethers (XVI), (XVIII), (XIX), (XX), (XVII) the  $\alpha$ -,  $\beta$ - and  $\gamma$ -isomers of 1,2,5-trimethyl-4-phenyl-4-piperidol (I), (XXI) and (XXII) were obtained. For the pharmacological test the hydrochlorides of the ethers of some tertiary and secondary  $\gamma$ -piperidols were prepared (more exact information in the experimental part). There are 4 Soviet references.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow  
 Institute for Fine Chemical Technology)

SUBMITTED: June 23, 1958

Card 2/2

5 (3)

AUTHORS:

Nazarov, I. N., Prostakov, N. S.,  
Mikheyeva, N. N., ~~Kirillovich~~, V. I.

SOV/79-29-8-11/81

TITLE:

Synthesis of 1-Oxyalkyl-2,5-dimethyl Piperidines

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2508 - 2512  
(USSR)

ABSTRACT:

For the synthesis of the amino alcohols which serve as intermediates in the syntheses of the analgesic-, local anaesthetic-, and spasmolytic pharmaceuticals (which contain a ring-substituted piperidyl radical as an amine residue), the authors used 2,5-dimethyl-4-piperidone (I), which results, according to I. N. Nazarov, from propenyl isopropenyl ketone and ammonia (Refs 1,2). By reduction of hydrazone (II), according to Kizhner, compound (III) was obtained with a yield of 75% (Scheme 1). The introduction of the alkoxy substituent into the nitrogen of the piperidine ring was carried out in various ways: as in the direct reaction of piperidine (III) with ethylene chlorohydrin, compound (V) also resulted by reduction of the ethyl ester of acid (IV) obtained from (III) and ethyl bromoacetate with lithium aluminum hydride. The reduction of hydrazone (VI) of the 1-β-hydroxyethyl-2,5-dimethyl-4-piperidone likewise led to amino

Card 1/2

Synthesis of 1-Oxyalkyl-2,5-dimethyl Piperidines

SOV/79-29-8-11/81

alcohol (V) (35% yield). The ethyl esters  $\alpha$ -(VII) and  $\beta$ -(VIII) of 2,5-dimethyl-piperidyl-1 propionic acids were obtained by condensation of the esters of the corresponding bromine-substituted propionic acids with (III). The methyl esters (IX) and (X) were synthesized in the same way (Scheme). The amino ketone (X) was also reduced by sodium to the amino alcohols (XI) and (XII). The condensation of 2,5-dimethyl piperidine with propylene oxide in an alcoholic dioxane solution at 60-70° leads to a mixture of amino alcohols (XI) and (XII). There are 2 Soviet references.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: July 10, 1958

Card 2/2

5(5)

AUTHORS: Nazarov, I. N., Prostakov, N. S., Mikhayeva, N. N., Fradkina, N. A. SOV/79-29-8-34/8

TITLE: Synthesis of  $\gamma$ -Halogen-substituted 1,2,5-Trimethyl-, 2,5-Dimethyl-, and 1-Acyl-2,5-dimethyl Piperidines

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2609-2613 (USSR)

ABSTRACT: There are but little data available in publications dealing with the  $\gamma$ -halogen-substituted piperidines. On the basis of the method of synthesizing the secondary and tertiary  $\gamma$ -piperidoles already devised by the authors (Ref 2), they investigated the substitution of halogen for the oxy-group of these piperidine alcohols. The piperidoles (III) and (IV) used as initial products were converted by reduction of the piperidones (I) and (II). The compounds (Va) and (VI) were formed on reaction of the corresponding piperidoles with thionyl chloride (70% yield). In this way, the mixture of the stereoisomeric 1,2,5-trimethyl-4-chloro-piperidines (Va) is formed from the mixture of the stereoisomeric 1,2,5-trimethyl-4-piperidoles (III) which is obtained by reduction of piperidone (I) with sodium in alcohol. In this first-mentioned mixture, one of the isomers is predominant (70%), which melts in the form of the picrate at 198-200°. The same isomer of the chloride (Va) was also obtained from 1,2,5-trimethyl-4-pi-

Card 1/2

Synthesis of  $\gamma$ -Halogen-substituted 1,2,5-Trimethyl-,  
2,5-Dimethyl-, and 1-Acyl-2,5-dimethyl Piperidines

SOV/79-29-S-34/81

peridole (melting-point  $72-73^{\circ}$ ), which was separated from the mixture of the stereoisomeric piperidoles (III) (also in a yield of 70%). In the same way, compound (VI) was formed which was converted into (XVI) with acetic anhydride. Compound (Vb) resulted on reaction of the piperidole (III) with phosphorus tribromide. The halogen-substituted derivatives (Va) and (Vb) can only be distilled in the vacuum. On standing, and at  $130^{\circ}$ , they are transformed into hygroscopic products. Further chemical transformations of 1,2,5-trimethyl-4 and 2,5-dimethyl-4-chloro-piperidine were carried out. There are 4 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow  
Institute of Fine Chemical Technology)

SUBMITTED: July 10, 1958

Card 2/2

5(3)

SOV/79-29-9-12/76

**AUTHORS:**

Nazarov, I. N., Prostakov, N. S., Raskina, E. M.,  
Mikheyeva, N. N., Stolyarova, L. G.

**TITLE:**

Synthetic Anti-spasmodic Substances. Synthesis of 1-Phenyl-1-cyclohexyl-3-(2',5'-dimethyl piperidyl-1')-propanol-1

**PERIODICAL:**

Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2861-2864 (USSR)

**ABSTRACT:**

2,5-dimethyl-4-piperidone (II) (Refs 1, 2) obtained from ammonia and propenyl-isopropenyl ketone (I) according to I. N. Nazarov, was made use of for the synthesis of compounds structurally related to the efficient anti-spasmodic Arthan. (I) is an intermediate in the synthesis of anesthetics Promedol, Isopromedol and  $\alpha$ -Promedol (Ref 3). Compound (II) was transformed to (VII) according to Kizhner by reducing hydrazone (III) of piperidone (II) as well as by cleaving the piperidine compound (VI) with water; the latter compound is formed by compound (V) and lithium. Chloroderivative (V) was obtained from the reaction of piperidol (IV) with thionyl chloride. Condensation of piperidine (VII) with acetophenone and formaldehyde according to Mannich caused the separation of ketone (VIII) which was further transformed into compound (IX) by

Card 1/2

Synthetic Anti-spasmodic Substances. SOV/79-29-9-12/76  
 3-(2',5'-dimethyl piperidyl-1')-propanol-1 Synthesis of 1-Phenyl-1-cyclohexyl-

the reaction with magnesium chloro cyclohexyl. According to preliminary pharmacological data by M. D. Mashkovskiy (VNIKhFI), the chlorohydrate of this tertiary amino alcohol exhibits a marked anti-spasmodic activity and is but little inferior to Arthan (Reaction Scheme). To investigate the structure dependence of this activity of tertiary amino alcohols containing the 2,5-dimethyl-1-piperidyl group as amine radical, the authors synthesized propanols (X), (XI), (XII), (XIII). The synthesis of these amino alcohols was made with the already earlier described ethyl esters (Ref 4) of  $\beta$ -(2,5-dimethyl piperidyl-1)-propionic and  $\alpha$ -(2,5-dimethyl piperidyl-1)-propionic acid as well as with 1-acetonyl-2,5-dimethyl piperidine and the corresponding organomagnesium compounds. There are 4 Soviet references.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii  
 (Moscow Institute of Fine Chemical Technology)

SUBMITTED: July 10, 1958

Card 2/2



5(3)

AUTHORS:

Nazarov, I. N., Prostakov, ~~N. S.~~  
Mikheyeva, N. N., Mikhaylova, N. M.

SOV/79-29-9-27/76

TITLE:

Synthetic Anaesthetics. Derivatives of 1-Oxyalkyl-2,5-dimethyl Piperidine

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2940-2942 (USSR)

ABSTRACT:

The 1-oxyalkyl-2,5-dimethyl piperidines described in one of the previous reports (Zhurnal obshchey khimii, 29, 2861, 1959) were used for the synthesis of their esters which may be useful as anaesthetics of the methycaine and surphocaine type (meticaine? surfocaine?) as well as for the synthesis of 1-alkyl halide-2,5-dimethyl piperidine, as intermediates in the synthesis of the anaesthetics of the phenadone group. Benzoylation of 1- $\beta$ -oxyethyl-2,5-dimethyl piperidine (I), 1- $\alpha$ -methyl- $\beta$ -oxyethyl-2,5-dimethyl piperidine (II), 1- $\beta$ -oxypropyl-2,5-dimethyl piperidine (III) produced benzoates of these amino alcohols, (IV), (V), (VI) (Scheme). The oxy-group in the amino alcohols (I), (II), (III) was replaced by chlorine by means of thionyl chloride. The following piperidines were obtained in yields of up to 80%:

Card 1/2

Synthetic ~~Anesthetics~~ Anesthetics. Derivatives of  
1-Oxyalkyl-2,5-dimethyl Piperidine

SOV/79-29-9-27/76

1- $\beta$ -ethyl-chloride-2,5-dimethyl piperidine (VII),  
1- $\alpha$ -methyl- $\beta$ -ethyl-chloride-2,5-dimethyl piperidine (VIII),  
1- $\beta$ -propyl-chloride-2,5-dimethyl piperidine (IX). In heating  
the latter with 30% alcoholic alkali solution 1- $\beta$ -ethoxy-  
propyl-2,5-dimethyl piperidine (X) was separated instead of  
the expected product of dehydrochlorination.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii  
(Moscow Institute of Fine Chemical Technology)

SUBMITTED: July 10, 1958

Card 2/2

PROSTAKOV, N.S.; MIKHEYEVA, N.N.

Substituted pyridines. 2,5-dimethyl-4-phenylpyridine and its transformations. Med.prom. 14 no.2:11-13 P '60. (MIRA 13:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(PYRIDINE)

HAZAROV, I.N. [deceased]; PROSTAKOV, N.S.; MIKHEYEVA, N.N.

Preparation of a mixture of a promedol base and 1,2,5-trimethyl-4-phenyl-4-piperidol. Med.prom. 14 no.6:26-30 Je '60.

(MIRA 13:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(PIPERIDINE)

(PIPERIDINOL)

PROSTAKOV, N.S.; MIKHEYEVA, N.N.; IGUMNOVA, A.V.; ZIMINA, G.I.

Substituted pyridines. 2,5-Dimethyl-4-[ $\eta$ (o)-tolyl]pyridines  
and their conversions. Zhur.ob.khim. 30 no.7:2294-2297  
Jl '60. (MIRA 13:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.  
(Pyridine)

PROSTAKOV, N.S.; SHAKHPARONOVA, L.A.; KIRILLOVA, L.M.

Substituted pyridines. 2,5-Dimethyl-4-benzoylpyridine and  
2,5-dimethylpyridyl-2-aniline. Zhur. ob. khim. 34 no.10:  
3231-3234 O '64. (MIRA 17:11)

1. Universitet druzhby narodov imeni Patrisa Lumumby.

PROSTAKOV, N.S.; MAT'YU, K.Dzhon; DKHARVAR PKHAL'GUMANI

Syntheses based on 2,5-dimethyl-4-phenylpyridine, Zhur. org. khim.  
1 no.6:1128-1129 Je '65. (MIRA 18:7)

1. Universitet druzhby narodov imeni P.Lumumby.

L 06344-67 EWP(j)/EWT(m) IJP(c) RM

ACC NR: AP6030326

(A,N)

SOURCE CODE: UR/0153/66/009/003/0491/0493

AUTHOR: Gridunov, I. T.; Prostakov, N. S.; Rodionova, V. G.; Marshavina, N. L.; Fomina, V. A.

26  
13

ORG: Department of Rubber Technology, Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Kafedra tekhnologii reziny, Moskovskiy institut tonkoy khimicheskoy tekhnologii); Peoples' Friendship University im. Patrice Lumumba (Universitet druzhby narodov)

TITLE: Effect of 1,2,5-trimethyl-4-phenyl- $\Delta^4$ -didehydropiperidine on the plasticity of Nairit and the physicommechanical properties of its vulcanizates

SOURCE: <sup>15</sup>IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 9, no. 3, 1966, 491-493

TOPIC TAGS: polychloroprene, plasticizer, vulcanization, RUBBER

ABSTRACT: The effect of 1,2,5-trimethyl-4-phenyl- $\Delta^4$ -didehydropiperidine (PD) admixtures on the plasticity of Nairit rubbers subjected to identical milling at room temperature and the influence of heating time on the plastic properties of the rubbers (with and without PD) were studied. In addition, the effect of PD on vulcanizates of composition A (Nairit 100.0, zinc oxide 5.0, MgO 10.0, rosin 5.0, stearic acid 1.0 pt. by wt.) was also studied. It was found that as the PD content rises, the plasticity of Nairit increases; this shows that during the mechanical treatment, degradation of the rubber takes place in the presence of PD. The rate of reaction of PD with poly-

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L 06344-67

ACC NR: AP6030326

chloroprene is much higher than the rate of oxidative-destructive processes. PD has an appreciable effect on the physicomachanical properties of the vulcanizates. As its content increases, the moduli, tensile strength and tearing strength decrease somewhat. It is apparent that during the vulcanization of Nairit in the presence of PD, not only -C-C- and -C-O-C- bonds, which strengthen the vulcanizates, are formed, but in addition, bonds like those of quaternary ammonium salts (which do not strengthen the vulcanizate) may be formed, causing the observed decrease in strength characteristic. Other things being equal, this process is much slower in the presence of ZnO than in the presence of MgO. Orig. art. has: 2 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 06Jul64/ ORIG REF: 001

Card 2/2 nle

L 37226-66 EWT(1) JW/RO

ACC NR: AP6015395

SOURCE CODE: UR/0409/65/000/004/0531/0536

AUTHOR: Prostakov, N. S.; Mikheyeva, N. N.; Pkhal'gumani, D.; Mat'yu, K. D.

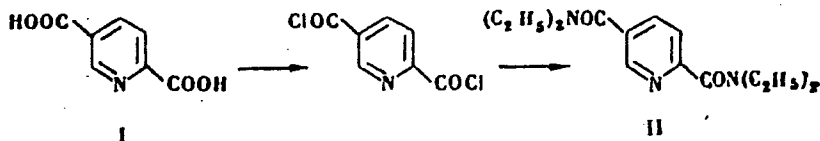
ORG: Peoples' Friendship University im. Patrice Lumumba, Moscow (Universitet druzhby narodov)

TITLE: Substituted pyridines. Amides and hydrazides of pyridinecarboxylic acids

SOURCE: Khimiya geterotsiklicheskih soyedineniy, no. 4, 1965, 531-536

TOPIC TAGS: organic amide, hydrazine derivative, pyridine, aromatic carboxylic acid

ABSTRACT: Pyridinecarboxylic acids obtained from oxidation of dimethyl-substituted pyridine bases were used for synthesizing their amides and hydrazides, which are substances of pharmacological interest. The reactions are illustrated in the diagram:

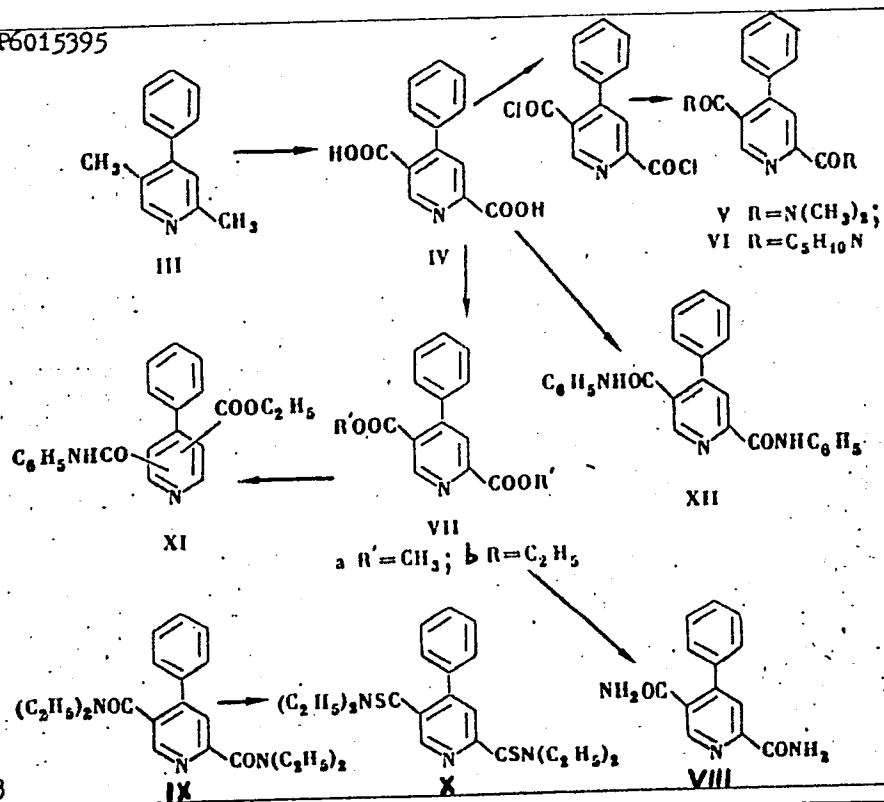


Card 1/3

UDC: 547.826 + 542.95

I. 37226-66

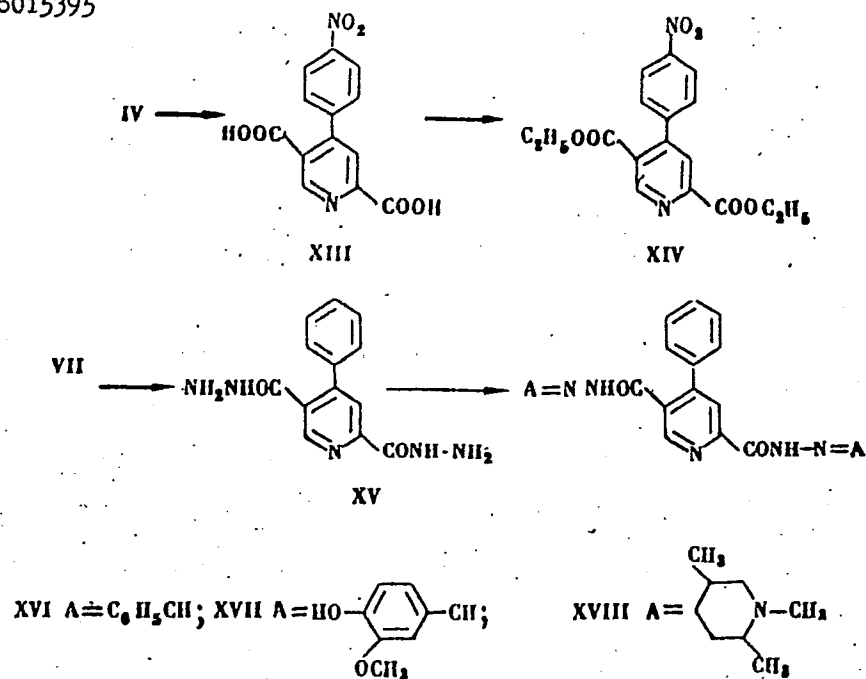
ACC NR: AP6015395



Card 2/3

L 37226-66

ACC NR: AP6015395



SUP CODE: 07/ SUBM DATE: 28 May 64/ ORIG REF: 001

Card 3/3

GRIDUNOV, I.T.; PROSTAKOV, N.S.; RODIONOVA, V.G.

Effect of 1,2,5-trimethyl-4-phenyl-Delta 4-didehydropiperidine  
on the plasticization of natural rubber. Izv. vys. ucheb. zav.,  
khim. i khim. tekhn. 7 no.5:867-868 '64 (MIRA 18:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
M.V. Lomonosova i Universitet Druzhby Narodov imeni Patrisa  
Lumumby.

PROSTAKOV, N.S.

Why is the knowledge of chemistry possessed by secondary school graduates too abstract? Khim.v shkole 15 no.1:47-48 Ja-~~F~~ '60.  
(MIRA 13:5)

1. Institut tonkoy khimicheskoy tekhnologii imeni M.V.  
Lomonosova.  
(Chemistry--Study and teaching)

PROSTAKOV, N.S.; YAGODOVSKAYA, T.V.; MIKHILEVA, N.N.

Infrared spectra of isomeric 1,2,5-trimethyl-4-phenyl-4-peperidinols and the structure of the  $\beta$ -isomer of 1,2,5-trimethyl-4-phenyl-4-peperidinol. Zhur.ob.khim. 34 no.1:234-237 Ja '64. (MIRA 17:3)

1. Universitet druzhby narodov imeni P.Lumumby i Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.

PROSTAKOV, N.S.; ZAYTSEV, B.Ye.; MIKHAYLOVA, N.M.; MIKHEYEVA, N.N.

Spacial structure of isomeric 2,5-dimethyl- and 1,2,5-trimethyl-4-phenyl-4-piperidols. Zhur.ob.khim. 34 no.2:463-467 F '64.  
(MIRA 17:3)

1. Universitet druzhby narodov imeni Patrisa Lumumby.



PROSTAKOV, N.S.; GAYVORONSKAYA, L.A.; MIKHAYLOVA, N.M.; KIRILLOVA, L.M.

Substituted pyridines. Synthesis of 2,5-dimethyl-4-alkaryl  
(aryl) pyridines. Zhur. ob. khim. 33 no.8:2573-2576 Ag '63.  
(MIRA 16:11)

1. Universitet druzhby narodov imeni Patrisa Lumumby.

PROSTAKOV, N.S.; GRIDUNOV, I.T.; MARSHAVINA, N.L.; RODIONOVA, V.G.

Synthesis of dithio[2,5-dimethyl-4-oxo(hydroxy)-1-piperidyl]carbamic acid and 1,2,5-trimethylthio-4-piperidone. Zhur.ob.khim. 34 no.2:467-469 F '64. (MIRA 17:3)

1. Universitet družby narodov imeni P.Lumumby i Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.

PROSTAKOV, N.S.; MIKHEYEVA, N.N.

Space configuration of piperidine derivatives. Usp.khim. 31  
no.10:1190-1216 0 '62. (MIRA 15:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni  
Lomonosova.

(Piperidine)

(Stereochemistry)

PROSTAKOV, N.S.; GAYVORONSKAYA, L.A.

Substituted pyridines. Dehydrogenation and dealkylation of substituted piperidines. Zhur. ob. khim. 32 no.1:76-81 Ja '62. (MIRA 15:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Pyridine)

(Piperdine)

PROSTAKOV, N.S.; MIKHEYEVA, N.N.

Synthetic anesthetics. Separation of stereoisomeric 1,2,5-trimethyl-4-phenyl-4-piperidinols. Zhur. ob. khim. 31 no.1:108-113 Ja '61.  
(MIRA 14:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.  
(Piperidinol)

L 26456-66 EWT(1)

ACC NR: AP6017398

SOURCE CODE: UR/0144/65/000/009/0980/0984

AUTHOR: Prostakov, Petr Anatol'yevich (Senior lecturer)

ORG: Department of Electrotechnical and electrical machinery, Kazan' Aviation Institute (Kafedra elektrotekhniki i elektricheskikh mashin Kazanskogo aviatsionnogo instituta)

TITLE: Plotting the dynamic characteristics of a DC micromotor

SOURCE: IVUZ. Elektromekhanika, no. 9, 1965, 980-984

TOPIC TAGS: direct current, electric motor, miniature electric equipment, armature, electric inductance, electric resistance

ABSTRACT: The article examines a method of plotting the dynamic mechanical and speed characteristics of a DC micromotor based on the phase picture of the armature current, on deriving the pertinent formulas. The resultant magnetic flux  $\phi$  along the axis of the principal poles is plotted as a function of the armature current on taking into account such variables as the voltage  $U_a$  applied directly to the armature winding, the angular rotational speed  $\omega$  of the rotor, the resistance  $R$  and inductance  $L$  of the armature winding, the static moment  $M_s$ , and the time constant  $\tau$  of the electromagnetic processes in the equivalent damping circuit. By way of an example sets of the curves  $\phi = f(i)$  for  $\omega = \text{var}$  are plotted for an MA-1.0A motor (40 W, 26 V, 3.5 A, 9000 rpm). The calculated findings are found to be in agreement with the experimental findings. Orig. art. has: 5 figures and 5 formulas. [JPRS]

SUB CODE: 09 / SUBM DATE: 04 Oct 63 / ORIG REF: 003

UDC: 621.3.024+621.3.043

Card 1/1 PB

PROSTAKOV, P.A.

Determining the net magnetic flux of a d.c. motor under static conditions. Trudy KAI no.78:18-26 '63.

(MIRA 18:10)

PROSTAKOV, Petr Anatol'yevich, starshiy prepodavatel'

Construction of the dynamic characteristics of a d.c. micromotor.  
Izv.vys.ucheb.sav.; elektromekh 8 no.9:980-984 '65.

(MIRA 18:10)

1. Kafedra elektrotekhniki i elektricheskikh mashin Kazanskogo  
aviatsionnogo instituta.



L 14530-65 EWT(1) ASD(a)-5/AFMD(p)/AFIC(a)/ESD(dp)

ACCESSION NR: AT4047563

S/2529/63/000/075/0055/0060

AUTHOR: Prostakov, P. A.

TITLE: Constructing the dynamic characteristics of a direct-current low-power motor with independent drive, using the phase plane

SOURCE: Kazan. Aviatsonnyy institut. Trudy\*, no. 75, 1963. Aviatsonnyye pribory\* i avtomaty\* (Aeronautical instruments and automatic equipment), 55-60

TOPIC TAGS: electric motor, DC motor, low power motor, armature switching reaction, flow damping, phase trajectory, aircraft automation

ABSTRACT: This article considers the construction of the dynamic characteristics of a low-power DC motor with independent drive by means of the phase trajectory of the armature current. The problem is solved by the isoclinic method. Through

Card 1/3

L 14530-65

ACCESSION NR: AT4047563

excited; 2) The power supply voltage is constant; 3) The resistance moment is constant; 4) The magnetic flow is a nonlinear function of the current  $\Phi = f(i_a)$ , taking into account both the longitudinal and transverse reaction of the  $\Phi$ , taking into account the transient conditions of the low-power motor

reaction and flow damping are taken into account  
12 formulae.

Card 2/3

L 14530-65

ACCESSION NR: AT4047563

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan Aviation Institute)

SUBMITTED: 15Dec61

ENCL: 00

SUB CODE: EE, AC

NO REF SOV: 001

OTHER: 000

Card 3/3

PROSTAKOV, P.Ye.; SOZYKIN, N.F.

Moisture conditions of the Chernozem soils under crop rotation  
in the steppe piedmonts of the Caucasus. Pochvovedenie no.4:9-  
17 Ap '64. (MIRA 17:10)

1. Volgogradskiy sel'skokhozyaystvennyy institut.

PROSTAKOV, P.Ye.

Regulating nitrification processes in irrigated carbonaceous  
Chernozems of Ciscaucasia. Pochvovedenie no.1:74-80  
Ja '60. (MIRA 13:5)

1. Stalingradskiy sel'skokhozyaystvennyy institut.  
(Caucasus, Northern--Nitrification)  
(Caucasus, Northern--Chernozem soils)

PROSTAKOV, P.Ye., prof.; BOBKOV, V.P.

Urgent problems in the reclamation of the Volga-Akhtuba Flood  
Plain. Zemledelie 24 no.8:83-85 Ag '62. (MIRA 15:9)

1. Volgogradskiy sel'skokhozyaystvennyy institut.  
(Volga-Akhtuba Flood Plain--Reclamation of land)

PROTASOV, V.I.

Cauchy problem for a linear differential equation of infinite order.  
Dokl. AN SSSR 164 no.4:743-745 0 '65.

(MIRA 18:10)

1. Submitted March 8, 1965.

PROSTAKOV, Ye.S., inzh.

Mechanized separation of viscous clays from hard rocks.  
Gor. zhur. no.6:69-70 Je '62. (MIRA 15:11)

1. Gosudarstvennyy institut po proyektirovaniyu gornyykh  
predpriyatiy zhelezorudnoy i margantsevoy promyshlennosti  
i promyshlennosti nemetallicheskih iskopayemykh, Leningrad.  
(Clay)  
(Ore dressing—Equipment and supplies)



PROSTAKOVA, T.N.

~~Case of dipylidiasis in man. Med. paras. i paras. bol. no.2:178~~  
Case of dipylidiasis in man. Med. paras. i paras. bol. no.2:178  
Ap-Je '54. (MLRA 7:8)

1. Iz gel'mintologicheskogo otdela Osipenskoy gorodskoy protivomalyariynoy stantsii (zav. stantsiyey Ye.V.Grigor'yeva, zav. otdelom T.N.Prostakova)

(TAPEWORMS,

\*Dipylidium caninum, infect., case report)

PROTASOV, A.G.

PRITYKIN, A.N., inzhener; PROTASOV, A.G., inzhener; IZBAILEVICH, L.A., kandidat tekhnicheskikh nauk.

Automatization of molding. Lit. proizv. no.3:17-19 Mr '57.  
(Foundry machinery and supplies) (MLRA 10:4)  
(Automatic control)

PROTASOV, S., inzhener.

~~Fitter Ivanov's~~ automatic brick clay cutter. Stroi. mat. 3 no.3:20 Mr  
'57. (MIRA 10:4)  
(Brickmaking machinery)

PROSTAKOVA

TARASENKO, N.Yu.; PROSTAKOVA, I.G. (Moskva)

Health problems connected with work in atomic power plants. Gig.  
truda i prof.zab. 1 no.1:10-14 Ja-F '57. (MIRA 10:6)  
(ATOMIC POWER INDUSTRY--HYGIENIC ASPECTS)

PROSTAPENKO, I.

New features in the training of welders. Prof.-tekh. obr. 18 no.1:10-11  
Ja '61. (MIRA 14:2)

(Electric welding)

PROSTAPENKO, I.

Laboratory work of construction workers. Prof.-tekh. obr.  
19 no.5:17-18 My '62. (MIRA 15:5)  
(Building trades--Study and teaching)

PROSTAPENKO, I.

Advice on educational methods. Prof.-tekhn.obr. 19 no.11:13-16  
N '62. (MIRA 16:2)

(Building trades—Study and teaching)

PROSTAPENKO, I.

Houses are prefabricated on a conveyer. Prof.-tekh. obr. 18  
no.4:16-18 Ap '61. (MIRA 14:4)  
(Precast concrete construction)



PROSTAPENKO, I.

Plumbers master the latest technology. Prof.-tekh.obr. 17 no.6:7-8  
Je '60. (MIRA 13:7)  
(Moscow--Plumbing)

PROSTAPENKO, Ivan Stepanovich; IVANOV, V.P., nauchn. red.; LAFAZAN,  
M.I., red.; BARANOVA, N.N., tekhn. red.

[Instructional technological charts for the industrial  
training of painters] Instruksionno-tekhnologicheskie  
karty dlia proizvodstvennogo obucheniia maliarov. Mo-  
skva, Proftekhizdat, 1963. 247 p. (MIRA 17:2)

PROSTAFENKO, I.; SEMENOV, S.

Unified test papers for construction workers. Prof.-tekh.obr.  
22 no.11:10-11 N '65. (MIRA 18:12)

ACC NR: AP6017973

SOURCE CODE: UR/0413/66/000/010/0073/0073

INVENTORS: Baranov, V. K.; Protasov, N. N.; Krylova, T. N.; Suyetin, V. F.

ORG: none

TITLE: A method for preparing a selectively reflecting mirror. Class 32,  
No. 181792

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 73

TOPIC TAGS: zinc compound, magnesium compound, nickel, chromium, titanium compound,  
silicon compound, mirror, radiation

ABSTRACT: This Author Certificate presents a method for preparing a selectively reflecting mirror. The method involves consecutive deposition of the interference layers of zinc sulfide and magnesium fluoride, or of titanium dioxide and silicon dioxide onto the underside of the interference layers. To absorb radiation passed by the interference coating, the metallic undercoat is previously covered with an absorbing layer of rough nickel or of rough chromium.

SUB CODE: 20/

SUBM DATE: 25Mar65

Card 1/1

UDC: 666.1.056

SICHA, M.; VESELY, V.; STUDNICKA, J.; PROSTEJOVSKY, J.; NOVAK, M.

Examination of the stationary and moving stratification in the neon discharge by means of local high-frequency field. *Chekosl fiz zhurnal* 12 no.12:919-929 '62.

1. Lehrstuhl für Elektronik und Vakuumphysik, Karlsuniversität, Prag (for all except Novak). 2. Physikalisches Institut, Tschechoslowakische Akademie der Wissenschaften, Prag (for Novak).

STUDNICKA, J.; SICHA, M.; VESELY, V.; PROSTEJOVSKY, J.

The effect of stationary stratification on moving striations in  
a glow discharge in Ne. Chekhosl fiz zhurnal 13 no.1:31-35 '63.  
(MIRA 16:2)

1. Katedra elektroniky a vakuove fyziky, Karlova universita,  
Praha.

L 59649-65 EWT(1)/EPF(n)-2/ENG(m)/EPA(w)-2 Pz-6/Pe-4/Pab-10/F1-4 IJP(c)  
WR/AT

ACCESSION NR: AP4048329

Z/0055/64/014/010/0796/0798

AUTHOR: Prostajovsky, J.

TITLE: Local measurement of the electron temperature in the plasma of the positive column with the aid of microwave stroboscopy

SOURCE: Chekhozlovatskiy fizicheskiy zhurnal, v. 14, no. 10, 1964, 796-798

TOPIC TAGS: plasma electron temperature, electron temperature, positive column plasma, microwave stroboscopy

ABSTRACT: The temperature of electrons in a plasma may be measured by making use of the noise output in a microwave band through the positive column. Noise output may

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L 59649-65

ACCESSION NR: AP4048329

periodically. It is particularly suited to positive column measurements with moving strata and enables a short section of the column to be coupled to the tubular conductor. It therefore allows for measurements of neon discharges in which the strata do not exceed several cm in length. The measurement of the pulsation factor used to check the adaptation also makes possible the determination of the instantaneous value of a periodically variable impedance. Orig. art. has: 2 figures.



"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R001343310017-8

SUBMITTED: 19Mar64

ENCL: 01

SUB CODE: ME, EC

NO REF SOV: 000

OTHER: 002

Card 2/3

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R001343310017-8"

L 59649-65

ACCESSION NR: AP4048329

ENCLOSURE: 01

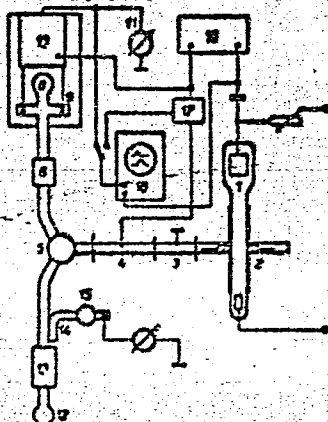


Fig. 1. Schematic diagram of the measurement device: 1. discharge tube, 2. tubular conductor terminal, 3. adaptation transformer, 4. measurement line, 5. tubular conductor terminal.

generator, 17. gate switch, 18. oscilloscope

Card 3/3 *dlp*

Z/055/63/013/001/005/013  
E032/E414

AUTHORS: Studnička, J., Šicha, M., Veselý, V., Prostějovský, J.

TITLE: The effect of stationary stratification on moving striations in a glow discharge in Ne

PERIODICAL: Czechoslovak Journal of Physics, Section B, v.13, no.1, 1963, 31-35

TEXT: The effect of stationary stratification on the parameters of moving striations was investigated with the apparatus described previously (Czech. J. Phys. B 12 (1962), 919). The resonator with which the stratification was excited was supplied with high frequency power which was sufficient to maintain self-supporting high frequency discharge. The high frequency power was modulated with a sine wave derived from a low frequency oscillator. The depth of modulation was sufficient to excite moving striations and was of the order of 10%. The second resonator was placed near the anode and was supplied from a constant amplitude source which was also sufficient to maintain a self-supporting high frequency discharge. Changes in the intensity of the glow in a photomultiplier which could be displayed on a oscilloscope and moving striations were measured with the aid of

Card 1/3

The effect of stationary ...

Z/055/63/013/001/005/013  
E032/E414

The form of the stationary striations was established by measuring the d.c. component of the photomultiplier output which was proportional to the constant component of the radiation emitted by the discharge. The amplitude of the moving striations was determined by measuring the alternating component across a load resistance. The velocity of the moving striations was also determined with the aid of the movable photomultiplier and an oscillograph. Measurement of the amplitude of the moving striations showed that in the region of the maximum of the constant component of the emitted intensity (stationary layers), the amplitude of the alternating component was lower than otherwise. Thus, the moving striations are attenuated at points at which the stationary striations are present. The positions of the minima and maxima in the amplitude of the moving striations are independent of the frequency of the striations but do depend on the structure of the stationary stratification. The velocity of the striations reaches a maximum in the region where the intensity of the constant component of the light flux is a minimum and vice versa. Thus, the results obtained in this work are in agreement

Card 2/3